

AIRPLANE MOTOR NOW PERFECTED FOR U. S.

American Engineers Successful
in Designing New "Liberty
Motor" to Propel Government
Flying Machines

DETAILS LEFT TO TWO MEN

WASHINGTON, Sept. 12.—The Liberty motor, the airplane engine upon which the United States is relying to establish definite air supremacy over the Germans over the battlefields of France, has passed its final test, and is a complete and gratifying success, Secretary Baker announced today.

In his announcement Secretary Baker told how all the best brains and business of American motordom had contributed its secrets and achievements to the government to produce the Liberty motor, which is to carry thousands of American airplanes over Germany.

To S. D. Waldon and E. A. Deeds, acknowledged to be two of the best engineers in the United States, belongs the credit for producing the Liberty Motor, the engine which solves America's aeroplane problem and makes a certainty of America's air supremacy. The story of the making of the first Liberty Motor will take its place as one of the nation's greatest achievements.

The Liberty Motor has been designed specifically with a view to its production in quantities. Its various parts are adapted to being turned out by machine methods, instead of the laborious hand-tooled methods prevailing abroad.

So satisfactory have all the tests been that large plants already have been organized for its manufacture. The preliminary work is going ahead rapidly, and the first deliveries in quantity will be forthcoming shortly.

Tests Gratifying

Secretary Baker's statement follows: "The United States aviation engine" has passed its final tests. They were successful and gratifying. The new motor, designated by the Signal Service as the "Liberty Motor," is now the main reliance of the United States in the rapid production in large numbers of high-powered battle planes for service in the war. In power, speed, serviceability and minimum weight the new engine invites comparison with the best that the European war has produced.

"I regard the invention and rapid development of this engine as one of the really big accomplishments of the United States since its entry in the war. The engine was brought about through the co-operation of more than a score of engineers, who pooled their skill and trade secrets in the war emergency, working with the encouragement of the Aircraft Production Board, the War Department and the Bureau of Standards.

War's Greatest Achievement

"The story of the production of this engine is a remarkable one. Probably the war has produced no greater single achievement.

"One of the first problems which confronted the War Department and the Aircraft Production Board after the declaration of hostilities was to produce quickly a dependable aviation motor. Two courses were open. One was to encourage manufacturers to develop their own types; the other to bring the best of all types together and develop a standard.

"The necessity for speed and quantity production resulted in a choice of the latter course, and a standard motor became our engineering objective.

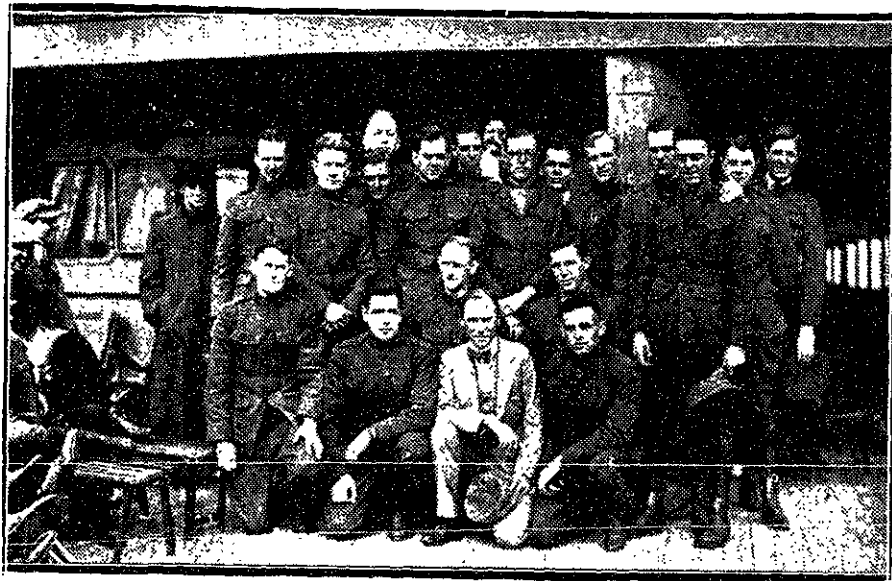
"Two of the best engineers in the country, who had never before seen each other, were brought together at Washington, and the problem of producing an all-American engine at the earliest possible moment was presented to them. Their first conference, on June 3, lasted from afternoon until 3:30 o'clock in the morning.

Engineers Locked in Conference

"These two engineers were, figuratively, locked in a room in a Washington hotel and charged with the devel-

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These Men Feed an Army's Guns



THIS is a picture taken aboard the S. S. Rochambeau of the Institute men who sailed with undergraduates of other colleges as members of the American Field Service in France. Upon arriving abroad they were transferred to the transport division and now drive Pierce Arrow and White ammunition trucks. In the center is Van Rensselaer Lansing '98, director of the Technology Club of Paris, who accompanied the Technology Unit on the Rochambeau.

PLANS FOR COMING YEAR

M. I. T. Committee For National Service Drafts Program

Important plans for future work were made at the meeting of the Executive Committee of the M. I. T. Committee for National Service in Washington on September 1. In addition to the regular members of the Committee—as, P. Munroe, chairman; F. G. Smyth, treasurer; C. W. Eaton and Morris Knowles—there were present F. R. Hart, W. Humphreys, and H. E. Keblon, representing the Executive Committee of the Alumni Association, F. H. Fay representing the Association of Class Secretaries, A. E. Bemis and H. W. Tyler for the finance committee for the auxiliary war work, and J. M. DeBell, who is in charge of the Washington office. Mrs. Edward Cunningham and Mrs. A. J. George attended one of the sessions of the committee, and Professor Henry G. Pearson was present to make a report on his recent trip to Technology centers in the Middle West.

As a result of the discussion held during the day the following decisions were reached:

"1. In view of its constant usefulness, the Washington office is to be continued, under conditions involving less expense to the M. I. T. Committee for National Service. If possible, a man will be found to take permanent charge of it.

"2. A complete record is to be kept of all Technology men and women performing any kind of service in connection with the war. This will be done by the Alumni office in Cambridge, working in conjunction with the Registrar's office, the Association of the Class Secretaries, the Washington office and the local clubs. Moreover, a general appeal for information is to be sent out to all Alumni and former students. All who receive this appeal are urged to reply without delay. Unless these records are complete, the work to be done for Technology men in France will be only partly effective.

"3. The War-Time will continue on its present basis. The value of its news service to the Alumni is constantly increasing. Those who have not yet subscribed should do so at once.

"4. The Technology Workroom, about to be opened in the Rogers Building deserves the support of all interested in supplying the numerous articles that contribute to the comfort of the soldier in camp and hospital. Moreover, the workroom, through its affiliation with the Red Cross, has the privilege of forwarding to Technology men in France packages sent to them individually.

This opportunity to reach individuals is not afforded by the regular channels. On account of this privilege, the workroom is sure to make a special

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DEAN BURTON RETURNS FROM 9000-MILE TRIP

Dean A. E. Burton of the Institute has returned from a 9000-mile trip with a record of having established 30 schools for deck officers for the new merchant marine in 90 days, or about one every three days. In these 30 schools 600 veteran sailors are polishing up on mathematics and observations so as to make them competent to figure the ship's course and position. In the New England group there are eight schools, some of whose graduates are already guiding ships across the Atlantic.

Dean Burton established schools as far South as Jacksonville and as far West as Seattle.

BROWN AND DARTMOUTH MAY PLAY FOOTBALL HERE

Possibility of Game Being Held at
Braves Field, Nov. 24

There is a possibility that Brown and Dartmouth will renew their football rivalry at Braves Field, Allston, on Saturday, Nov. 24. The game was scheduled for Springfield, but as the grounds there are unsuitable, it is hoped that the efforts of the Brown management will prevail and that the game be transferred to Boston.

As Harvard and Yale will not meet in their annual conflict in the Stadium, the event would prove a great attraction for the followers of both Brown and Dartmouth, as the teams have not met in this city since their battle at the old Huntington Avenue baseball grounds.

The present indications are that the two big New England colleges will play at Allston. Dr. Fred W. Marvel, athletic director at Brown, and H. C. Pender, graduate manager of athletics at Dartmouth, will meet in this city today or tomorrow to thresh out the matter. Dartmouth is desirous of having the game transferred to New York, but Brown men are holding out for Braves Field.

Those in authority in Brown football take the position that New York never has been a good football city and that more interest would be aroused, which would mean a much larger attendance, if the game is played here.

Unless the Brown men can induce Dartmouth to consent to Boston for the Brown-Dartmouth game it is predicted the two elevens will not clash at all this fall but that Brown will obtain some other strong varsity opponent for Nov. 24 in this city.

The arrangements for the Pennsylvania-Dartmouth game in this city on Nov. 10 have already been completed. This game will be played at Braves Field and it is not unlikely that a big professional game will also be staged at the Home of Big Things sometime during the gridiron season, possibly on Thanksgiving Day.

MUST SAVE WHITE BREAD TO AVOID WHEAT SHORTAGE

Federal Official Tells American Chemical Society
That Nation Must Save 4,000,000,000
Loaves in Year

SURVEY OF FOOD SUPPLY VALUABLE

CHARLES J. BRAND of the United States department of agriculture told the American Chemical Society yesterday, at its closing session at the Institute, that this country will have to do without 4,000,000,000 loaves of bread during the next twelve months, or a little less than thirty-two loaves per each person.

Analysis of Diet

"Thirty-nine per cent of the American diet," he said, "is animal food, 31 per cent cereal, 25 per cent fruits and vegetables, and the remaining 5 per cent sugars, condiments, etc."

"According to the United States food administration, there has been a world decrease of 115,000,000 head of cattle, hogs and sheep, and partly because of that, greatly increased exports of meat from this country. During the three years before the war our average annual exportation was 493,000,000 pounds of meat; during the war year between July 1, 1915, and June 30, 1916, the United States exported 1,400,000,000 pounds, or nearly 1,000,000,000 pounds more. The diversion of this large amount of meat makes it necessary to fall back on other forms of food, while we must furnish to our allies a much greater amount of bread, and make up an actual deficit of 70,000,000 bushels of wheat."

He outlined the work of his department and predicted that when the present survey of food stocks is completed, the United States will have more complete, detailed and accurate information about its food supplies than any country in the world.

He also dwelt on the activities of the bureau of markets as directed towards equalization of the flow of foods towards various markets, and said it was likely to result in "better prices and encouragement of production for the producer, as well as in more stable prices for the consumer, with a tendency to eliminate waste and, in the long run, to keep down the cost of living."

Potash Output Grows

W. H. Ross and Albert R. Merz reported on "The Recovery of Potash as a By-Product in the Cement Industry." After showing that 100,000 tons, or nearly one-half the normal yearly consumption of potash in this country, can be recovered from the cement mills, they went on to state that the American output of potash had grown from 350 tons in 1915 to 35,739 in 1916, with a value of more than \$4,250,000.

They also told of the recoveries from such sources as wool wash, kelp, waste liquors of beets, silicate rock and in cinerator ash, which were not in the country's conservation plans before the war. They also described America's production of nitrogen from the air, predicting that the results would show later on the fighting fronts.

The paper contained the following statistics of the American chemical industries:

"On Jan. 1, 1915, there were 12,375 chemical plants in this country, gathered under all classifications. They had a total capitalization of \$3,034,209,000, employed 300,000 wage earners and turned out products valued at \$2,001,634,000 yearly. The subdivisions of the industry made this showing: Dye-stuffs, 112 establishments, \$21,284,000 capital (to which \$190,000,000 has been added since the war started); explosives, 111 establishments and \$71,351,000 capital; fertilizers, 784 establishments and \$217,065,000 capital; chemicals and acids, 395 establishments for chemicals and 32 for acids, \$224,346,000 capital for the former and \$35,324,000 for the latter.

Chemists in Army

Capt. White of the bureau of ordnance told the delegates that the valu-

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The Tech

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FRIDAY, SEPTEMBER 14, 1917

THE NEW YEAR

WITH the fall entrance examinations we come close to the reopening of school, but it will be a different opening from any we have ever known. The unusually large freshman class which is expected and the marked depletion in the ranks of the upperclassmen are two of the distinguishing marks. Many of the most active men of last year have entered the Nation's service in one way or another, and their loss will be sorely felt in the student life of the coming year.

In addition to these features we will be surrounded with a martial atmosphere, afforded by the presence of the army and navy aviation students and the adoption of military courses by the regular students of the Institute. The freshman drill of other days has been extended in its scope to include men of all classes, and civilian clothes will be the uncommon thing when the year is fairly begun.

Altogether it will be a distinctly different year for Technology and should be started off with a rousing welcome to the newcomers on "Court-nyte."

COMMUNICATION.

To the Editor of The Tech,
Cambridge, Mass.

Dear Sir:—In the list of positions in the Government Service printed in your issue of September 7th, the following are announced for women as well as men: Circular Nos. 870, 871, 872, 873, 874 and 1950.

Please give this due publicity.
Very truly yours,
(Signed) Mabel K. Babcock '08.

COMMUNICATION

Editor The Tech

Dear Sir:—Just a line to report that I have been granted a temporary three months exemption from the draft quota of this town because of my being employed upon research work in connection with the casting and rolling, etc., of munitions metals.

R. M. Rennie '16 has been drafted, and expects to go to Ayer from here about Sept. 19th.

There undoubtedly must be other Tech news from here but at present I know of no further items.

Kindly see that the alumni lists are informed concerning these two items, and if any further news develops I shall endeavor to send it along.

Sincerely,

H. D. SWIFT '15.

COMMUNICATION.

To the Editor of The Tech.

Dear Sir:—I for one have the great pleasure of taking this opportunity to thank the members of the Alumni of Technology for the prompt action in providing a Club for the men of the Institute who are already in service in France.

I have been most hospitably received and comfortably housed in a most attractive Club room under the directorship of Mr. V. R. Lansing.

Coming from the Balkans, where I have been during the past seven months, to find the Technology Club of Paris already established has proved a great surprise and pleasure.

I think that Mr. V. R. Lansing deserves great credit for having accomplished so much in such a short time.

Sincerely yours,

KIMBERLY STUART '19.

THE VISITING CHEMISTS.

(From the Boston Transcript.)

It has been known what dismay and destruction were dealt by the first German gas attack in Flanders. The blow was directed against the British army entirely without suspicion that any civilized nation would use such a weapon in warfare and entirely without preparation to meet it. The United States has not been so clearly informed, however, what was the urgency of the report on the disaster returned to the London War Office by the British general commanding in Flanders, or the full extent of the military danger which he foresaw if some means of defence against the gas were not placed in his hands within a very short space of time. Suffice it to say his request was so imperative, it seemed almost impossible that human effort could answer it. Yet by nightfall of the fourth day after receipt of the commander's report three million protective outfits had been manufactured in England and delivered at the battle front for distribution to Great Britain's soldiers. Such was the story told to the American Chemical Society yesterday afternoon by Marston T. Bogert, chairman of the chemistry committee of the National Research Council. When he had finished its telling, the great gathering of American chemists broke into round of applause. Their plaudits expressed not only enthusiastic appreciation of a British feat which had been largely the work of chemists, but they registered also the will of American scientists to contribute, likewise to their utmost, to the success of the national and allied cause.

Already they have been contributing. That first attack by the Germans in Flanders now appears only a crude affair in the long train of developments which has followed upon it. Simple chlorine gas, set to drift with the wind, has given way to the gas-carrying shell with all manner of noxious fumes subject to constantly changing invention. In consequence, there must be the most vigilant watch for new kinds of gas, the promptest analysis of them and equally prompt provision of chemical means to neutralize their effect. Gas masks of the best type must be supplied in large numbers and kept constantly in proper condition, thus re-

quiring a system of laboratories at the front almost as extensive as the military establishment itself. In all this branch of warfare America must be prepared, and the American chemists have been hard at work to make sure that it will be.

Perhaps one of the most important fields of war work for chemists, this gas service is only one of a hundred problems assigned them. The production of hydrogen in large quantities is requisite, both for American submarines and for aviation. The detection of hydrogen leaks is also of great importance for the prevention of explosions, and thanks to the cooperation of the National Research Council and the Navy Department, a very satisfactory detector as well as a hydrogen-absorbing device has been invented. The provision of precisely the right kind of fuel for the thousands of airplanes which America will construct is distinctly a task for the chemists. The fuel must not only develop the strongest and most continuous driving power, but it must also be of a sort which will enable the driver of the aeroplane to rise to an altitude higher than that of his adversary. To be attacked from above is always a serious handicap in an air combat. Smaller problems parallel the greater. What, for instance, will be precisely the best glue for binding together the parts of an aeroplane's propelling blades? Army slickers, with the coating which has been used for them, it has been found are subject to spontaneous ignition when stacked and stored in large quantities. A different coating must be provided. To return to the larger tasks, the supply of synthetic drugs must be increased and maintained. Progress has gone far in the fixation of nitrogen for explosives. It must be carried still further.

When these tasks, indispensable to America's success in the war, are added to the many achievements indispensable to America's success in peace, which stand to the credit of American chemists, is it any wonder that Boston extends its heartiest welcome to the Fifty-Fifth Meeting of the American Chemical Society now in session here. From the opening speech of their assembly, the members have expressed their loyalty and affirmed their will to make all contributions which lie in their power. It is gratifying to know that full provision is now being made which should assure all chemists, in and out of the draft, an opportunity to make their contribution in the line of service for which they have been especially trained. The warning spoken yesterday by Professor Paul Angel, one of the visiting chemists from France, is in a fair way to be heeded. Our ally did not fully conserve her supply of scientific men. Now, in the light of far greater experience, we should be able to profit by the lesson taught to the nations abroad. Organization to assure this result has already gone far. The present meeting of the American Chemical Society, assembled in the splendid new halls of the Massachusetts Institute of Technology, under the favoring auspices of a general committee which has Professor H. P. Talbot for chairman, should carry the whole propaganda much farther, and Boston will be proud to watch its advance.

AIRPLANE MOTOR NOW PERFECTED FOR U. S.

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oment of an airplane motor for use by American aviators over the battlefields of Europe. For five days neither man left the suite of rooms engaged for them. Consulting engineers and draftsmen from various sections of the country were brought to Washington to assist them. The work in the drafting room proceeded continuously day and night. Each of the two engineers in immediate charge of motor development alternately worked a 24-hour shift.

"An inspiring feature of this work was the aid rendered by consulting engineers and motor manufacturers, who gave up their trade secrets under the emergency of war needs. Realizing that the new design would be a government design, and no firm or individual would reap selfish benefit because of its making, the motor manufacturers, nevertheless, practically revealed their trade secrets and made available trade processes of great commercial value. These industries have also contributed the services of approximately two hundred of their best draftsmen.

Remarkable Engine Produced

"The two engineers locked together in a hotel room in this city promised the government that, if given an opportunity, they would design a satisfactory engine before a working model could be brought from Europe.

"A remarkable American engine was actually produced three weeks before any model could have been brought from Europe. It was promised that

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INSURANCE OF ALL KINDS

this engine would be developed before the Fourth of July. Twenty-eight days after the drawings were started the new engine was set up. This was on July 3.

"In order to have the engine in Washington and in actual running order at the nation's capital on Independence Day, the perfected engine was sent from a Western city in a special express car. The journey was made in twenty-one hours, and four young men guarded the engine enroute to Washington and personally attended to its transfer from one railroad to another.

"With the need for speed as an incentive, tools for building the first engine were made even before the drawings were finished, on the assumption that they would be correct.

Twelve Factories Make Parts

"Parts of the first engine were turned out at twelve different factories, located all the way from Connecticut to California. When the parts were assembled the adjustment was perfect and the performance of the engine was wonderfully gratifying. This in itself demonstrates the capabilities of American factories when put to the test, and when thoroughly organized for emergency work of this sort.

"One of the chief rules outlined at the beginning of the designing work was that no engineer should be permitted to introduce construction which had not been tried out. There was no time for theorizing. The new engine is successful because it embodies the best thought of engineering experience to date. Not only did this country furnish ideal through celebrated consulting engineers, but the representatives in the United States of England, France and Italy cooperated in the development of this motor.

Best Engine in World

"Thirty days after the assembling of the first engine, preliminary tests jus-

tified the government in formally accepting the engine as the best aircraft engine produced in any country.

"The final tests confirmed our faith in the new motor in every degree.

"Both the flying and altitude test of the new motor have been gratifying. Our test was conducted at Pike's Peak, where the United States aviation engine performed satisfactory at this high altitude. One of the engines in an airplane broke the American altitude record in a recent flying test.

"While it is not deemed expedient to discuss in detail the performances and mechanics of the new motor, it may be said that standardization is a chief factor in the development of the government's motor. Cylinders, pistons and every other part of the motor have been standardized. They may be produced rapidly and economically by a great many factories operating under government contracts. They may be as rapidly assembled, either by these plants or at a central assembly plant."

Of the two men who are credited with responsibility for the new Liberty motor announced by Secretary of War Baker, S. D. Waldron, an engineer of high reputation in the automobile industry, has been a member of the War Aviation Board at Washington for more than four months, and recently received the commission of major in the United States army.

Until two years ago he was a dominant figure in the Packard Motor Company, of which he was vice-president when he resigned. He is said to be still a heavy stockholder in the corporation. He joined the Packard company in 1902 as a steam engineer, when its plant was at Warren, Ohio, and became chief engineer two years later. In 1910 he was made vice-president of the corporation.

When he left the Packard organization he went to the Cadillac Motor Company as an executive and an engineer. About a year ago he resigned and gave up active business to retire to his country place, near Detroit. At the time the war started, Mr. Waldron went to Washington to place his specialized talents at the service of the government.

F. A. Deeds, former general manager of the National Cash Register Company is widely known among engineers, and is a member of the Engineers' Club, of New York. When he left the National Cash Register Company, some years ago, he developed a self-starter for automobiles in association with C. S. Cutting, who is well known among the trade. More recently he has been manufacturing a small electric light outfit for rural communities. The object of the device is to bring the advantages of electricity to farmers who are outside the limits of urban power plants. His product is said to have attracted much attention among farmers.

Known as a practical engineer of unusual ability, Mr. Deeds had been centering his activities at Dayton before the war started as moving spirit in the Domestic Engineering Laboratory there.

COOL RESCUE BY 1919 MAN WINS HIM CROIX DE GUERRE

Kimberly Stuart, Class 19, who has been serving during the last year with the American Field Service with the French Army in the Balkans, has been awarded the famous "Croix de Guerre" by the Commanding General of his division: the order of citation reads as follows.

"Kimberly Stuart, an American volunteer in the Sanitary Service, on March 13th, under the fire of the enemy, picked up and carried to his ambulance several wounded artillery men with the greatest calm and sang froid."

EARN MORE BUT SPEND LESS

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it will add luster to the name of American science.

Chemist Will Do Good in Peace Time

"After all, however, it is in the beneficent paths of peace that the labors of the chemist do their greatest and most lasting good. We cannot see the dawn of peace yet, but we can see when it comes it will bring pressing problems to the man of science and particularly to the chemist. Indeed some of the problems are pressing urgently now. Think only of one of them—What can be done to offset the prodigious cost of war? Congress has already appropriated billions for war purposes and of course that is only the beginning. How is such a load of debt to be carried? Clearly only by spending less and earning more. Every patriotic citizen today, whatever his calling, should be preaching and practicing the doctrine of economy—the absolute necessity for avoiding all needless expenditure, which is only another word for work.

"This must be done everywhere, in our households, in our business, in our government, and few can render so much service in saving work as the chemist. You must rub this into the

minds of all who are in a position to make changes, and rub it in by particular instances and not merely by general statements. I could name you a single invention made in the last few years and scarcely heralded at all by the newspapers, that means the saving of over a hundred millions annually to the people of this land. Doubtless you could name similar instances and you see of course that it does not take many such improvements to pay for even so costly a war as this.

Need Many Trained Men

"There is however more to be done than to avoid work, there is the development of countless new ways of earning more. I need not refer in this presence to the practically infinite possibilities of the great science that you represent, possibilities resting not on the baseless fabric of a dream, but on the solid rock of scientific knowledge. To make these possibilities actual we must have two things—first a large supply of competent and well trained men and, second, appreciation on the part of men of business of the possibilities of science. Happily we are getting both, although of course there is still room for improvement. In such matters an ounce of experience is worth many tons of speculation, and so I may be permitted to refer to the recent experience of this Institute in the field that I have just indicated. We have been much encouraged not only by the rapidly increasing numbers who are taking chemistry for a profession, but what of course is of far more import, by their quality. And we have been particularly encouraged by our experience in conducting chemical education in co-operation with manufacturing concerns in various states of the Union. We have been dealing of course with a selected group, but we have not reason to suppose that there are not many other concerns with an equal appreciation of the value of sound scientific training to business enterprise and an equal readiness to co-operate with scientific workers.

Great Benefit in Co-operation

"May I add that I see great good in such co-operation, not only to business but to science. It will bring about, I think, amongst men of science more appreciation of the scope and intellectual interest of practical problems. There has been too much monasticism in science, too much aloofness from the affairs of daily life, too much looking down on the world as from another sphere. Even in the field of chemistry, itself, the relations between so-called "pure" chemistry and so-called "applied" chemistry have been oftentimes far from ideal. And the co-operation of which I have spoken will also bring about, I hope, a greater appreciation amongst business men of the value to business of the scientific method and spirit. When this appreciation becomes general, the victory will be complete. We have, I think, good grounds for looking forward to a time when science will be cultivated by the minds best adapted for its progress and under circumstances that make for its steady improvement. The day will dawn when there will be none of the nigardiness and littleness in the support of scientific research that marked the earlier generations, and that still are too much with us. We may look forward with confidence to an era of great accomplishment, not merely in the applications of science to the so-called "practical" problems, but within the strict realm of science itself. It should go without saying that these two things should move forward together each helping the other, and with full appreciation of the importance of both.

"And I feel sure that one of the great instruments for bringing about this splendid development will be the American Chemical Society, whose members I have the pleasure of welcoming today.

PLANS FOR COMING YEAR

(Continued from page 1)

appeal to Technology women. The committee in charge of this branch of work is the War Service Auxiliary, with Mrs. Cunningham as chairman. This committee is also responsible for all the different forms of women's work.

"5. The immediate response to the service offered by the Technology Club of Paris has amply justified the committee in sending Mr. Lansing over as promptly as it did. Although the club will presently take its place as a part of the American University Union, of which the Institute of Technology is a member, its work will more and more engage the interest of Technology men and women. They are urged to give it all the aid in their power.

"6. Plans for raising money for the various enterprises for which the M. I. T. Committee for National Service stands sponsor will presently be announced. In the meantime, the committee is glad to be able to state that none of the money so raised will be employed to defray any expense that is

in the nature of an overhead charge. Every dollar donated, the giver may rest assured, will be used to the last cent to meet the needs of the men in service here and abroad. How great these needs will be we are only just beginning to realize. The response of Technology men to this need is bound to be generous as it has been to every other call."

PLAN SECOND SCHOOL FOR ENSIGNSHIPS IN NAVAL RESERVE.

Students Passing High in Recent Exams Coming to the Institute

The second school for Naval Cadets of the United States Naval Reserve at the Institute will begin October 15. This class will be selected almost exclusively from those members of the Naval Reserve force who have been on active duty and who took the recent examinations at the Navy Yard. A few graduates and undergraduates of the Institute will be accepted, however. Captain Parker, superintendent of the school advises those men who wish to enroll to make application immediately to Mr. Humphries. The applicants will not be given an examination, but their appointment will depend upon general mental and physical fitness.

The work of the Cadet School is to train men for deck duties on fighting ships. The course of instruction covers navigation, seamanship, ordnance, navy regulations. The graduates of this school will be recommended for the commission of ensign. The fifty-three men in the first school complete their theoretical work Saturday. After that one week will be spent on the range, one week afloat, and one week on board a vessel at dock, after which will follow a study period for the final examinations.

OFFICIAL FROM THE M. I. T. Committee for National Service

JAMES P. MUNROE, Chairman

WASHINGTON BUREAU
908 Union Trust Building
JOHN M. DeBELL '17 in Charge

A direct means of communication between the Technology and the National Government. If there is anything you wish to know in Washington, write to the Technology Bureau.

Among the callers at the Washington Office this week have been:

John S. Nicholl '07, President of the Riverdale Boiler Works.

F. C. Harrington '11, who has just returned from Cuba.

Wright '13.

I. Weil '04.

H. C. Mabbott '12, Prov. 2nd Lieut. C. A. C., has been assigned to Fort Munroe, to the Officers' School.

Walter W. King '10, 1st Lt., Aviation Section S. O. R. C., has been assigned to duty at Wilbur Wright Field, Fairfield, O.

G. D. Spear, is among the aviation students recently graduated from the Institute school.

H. B. Gardner '17, is a captain in the Virginia National Guard.

Lester Gardner '08, and H. E. Keibon '12, have received their commissions as Reserve Captains in Signal Corps and Engineers, respectively.

W. C. Brown '16, Asst. Paymaster U. S. N., called at the Washington Office Wednesday, en route to France.

C. P. Fiske '14, was commissioned on Sept. 7 as 1st Lt., O. O. R. C.

F. J. Friedman '08, has received his commission as 1st Lt., O. O. R. C.

L. S. Baird '14, was commissioned 1st Lt., Aviation Section, S. O. R. C., on Aug. 15, 1917.

L. J. Harrigan '11, is reported as having sailed for France.

"Boots" Malone '15, is reported as having been transferred from O. O. R. C. to the Reg. Army Cavalry, with the rank of 2nd Lt.

J. P. Uhlinger '16, has been assigned to Lake Charles, La., on Aviation Camp Construction Work.

Charles Lyman Anson '06, has been assigned to the Charlestown Navy Yard as inspector.

S. W. Merrill '14, is stationed at Ayer with Co. B, 301st Regiment of Engineers, and as First Lieutenant.

Lt. C. M. Miller '17, 1st Lieutenant, who has been in charge of the Military Drill at the Institute in the School of Military Aeronautics has received his orders to report for duty at the Aviation Camp at Little Silver, N. J.

George R. Townsend '09, is Vice President and General Manager of the International Steel & Ordnance Co., at Lowell, Mass. Mr. Townsend is also associated with the American Shell Corporation at Paterson, N. J., as well as

The Tech Caf



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U. S. NEEDS TECHNICAL MEN FOR SERVICE DURING WAR

For further information concerning these positions, communicate with the nearest Secretary of the Civil Service Commission or the M. I. T. Committee for National Service, 908 Union Trust Bldg., Washington, D. C.

Position	Service	Salary	Date of Exam	Cir. No.
Laboratory Aid in Foreign Seed and Plant Introduction	Bureau Plant Industry, Dept. Agriculture	\$500-\$9,000	Sept. 19	1808
Asst. Inspector Cloth Equipment	Bureau Ordnance, War Dept.	\$80-\$125 per m.	—	1370
Asst. Inspector of Leather	Bureau Ordnance, War Dept.	\$100-\$125 per m.	—	1370
Asst. Inspector Small Hardware	Bureau Ordnance, War Dept.	\$80-\$125 per m.	—	1370
Asst. Inspector of Textiles	Bureau Ordnance, War Dept.	\$80-\$125 per m.	—	1370
Asst. Inspector Leather Equipment	Bureau Ordnance, War Dept.	\$100-\$125 per m.	—	1370
Asst. Testing Engineer	Public Rds., Dept. Agr.	\$1,800-\$2,500	Sept. 11	1803
Printer	Government Printing Office	50c.-60c. per hr.	Sept. 19-20	1806
Fireman, Bureau Standards	Bureau Standards	\$660-\$720	Sept. 19	1807
Statistician	Ordnance Dept., War Dept.	\$1,800	Sept. 11	1804
Timber Inspector	Industrial Dept., Navy Yard	\$4.24 per diem	—	—
		\$4.72 per mills	Sept. 11	1895
Inspector, Child Labor Division	Children's Bureau, Dept. of Labor	\$1,800-\$2,400	Sept. 18	1875
Bookkeeper	Departmental Service	\$1,000	Sept. 19	1865
Civil Engineer	Philippine Service	\$1,560-\$3,000	Sept. 18	1866
Law Clerk, Stenographer and Typewriter	Bureau Naturalization, Dept. Labor	\$1,000-\$1,400	Sept. 19-20	1897
Assistant in Crop Physiology	Bureau Plant Industry, Dept. Labor	\$1,200-\$1,500	Sept. 19	1896
	Philippine Service	\$1,560-\$3,000	Sept. 18	1868
Construction Engineer	Philippine Service	\$1,560-\$3,000	Sept. 18	1867
Mechanical and Electrical Engineer	Bureau Markets, Dept. Agriculture	\$1,800-\$2,400	Sept. 25	1902
Assistant in Marketing Dairy Products	Bureau Markets, Dept. Agriculture	\$1,200-\$1,800	Sept. 19	1901
Junior Assistant in Marketing Dairy Products	Children's Bureau, Dept. Labor	\$1,200-\$1,680	Sept. 19-20	1869
Special Agents and Research Assistants	Children's Bureau, Dept. Labor	\$1,200-\$1,680	Sept. 19	1870
Asst. Inspectors, Child Labor Division	Children's Bureau, Dept. Labor	\$2,400-\$3,600	Sept. 18	1871
Copyist Draftsman	Children's Bureau, Dept. Labor	\$1,800-\$2,400	Sept. 18	1872
Infant Mortality	Children's Bureau, Dept. Labor	\$1,800-\$2,400	Sept. 18	1873
Assistants in the Prevention of Infant Mortality	Children's Bureau, Dept. Labor	\$2,400-\$2,820	Sept. 18	1874
Experts in Child Welfare	Geological Survey	\$1,800-\$2,400	—	1798
Asst. Director, Child Labor Division	Ordnance Dept.	\$2,000-\$2,400	—	1770
Land Classifier	Bureau Steam Engr., Navy Dept.	\$12 per diem	Sept. 18	1904
Inspectors of Ordnance Equipment	Bureau Y & D, Navy Dept.	\$10-\$16 per diem	Sept. 11	1934
Senior Expert Electrical and Mechanical Aid	Bureau Y & D, Navy Dept.	\$10-\$16 per diem	Sept. 11	1934
Designing Engineer, Armor Plant and Steel Mill	Bureau Y & D, Navy Dept.	\$10-\$16 per diem	Sept. 11	1934
Designing Engineering, Heavy Steel Mill Construction	Bureau Y & D, Navy Dept.	\$10-\$16 per diem	Sept. 11	1934
Designing and Construction Engineer, Furnace Plant	Bureau Y & D, Navy Dept.	\$10-\$16 per diem	Sept. 11	1934
Hydraulic and Sanitary Engineer	Bureau Efficiency	\$2,000-\$3,000	Sept. 18	1669
Investigator in Accounting and Office Management	Ordnance Dept.	\$2,500-\$3,000	—	1937
Inspector of Cloth	Indian Service	\$720	—	1952
Trained Nurse	Naval Torpedo Station	\$2.56 per diem	Oct. 3	1950
Experts in the Prevention of Assistant in Marketing Live Stock and Meats, Grade 1	Bureau Markets, Dept. Agriculture	\$1,800-\$2,400	Sept. 25	1941
Assistant in Marketing Live Stock and Meats, Grade 2	Bureau Markets, Dept. Agriculture	\$1,200-\$1,800	Sept. 19	1939
Dynamo Tender	Bureau Engraving and Printing	\$3.68 per diem	Sept. 19	1936
Field Assistant in Forest Pathology	Bureau Plant Industry, Dept. Agriculture	\$1,200-\$1,620	Sept. 19	1935
Clerk Qualified as Typewriter Repairer	Bureau Pensions	\$1,200	Oct. 3	1917
Cook	Indian Service	\$480-\$660	—	1955
Forest Assistant	Philippine Service	\$1,600	Oct. 3-4	1951

with the T. A. Gillespie Co. in New York City, who are general contractors for the Government on Field Ammunition.

Aviation Non-Flying Service.

The Washington office is holding inquiries concerning aviation non-flying service pending the completion of reorganization now going on in that department. It is hoped that the desired information can be forwarded this week.

New Method for Obtaining Gasoline.

The department of the interior has announced a new method for extraction of gasoline from natural gas by absorption methods. The bulletin describing it is No. 120, by Messrs. Burrill, George A. Biddison, and Obeiffell.

TO MAKE AMMUNITION INQUIRY.

The Secretary of War announces the appointment of the following to investigate the matter of defective ammunition sent to the American expeditionary force in France:

Dr. H. P. Talbot, professor of chemistry at the Massachusetts Institute of Technology.

Dr. C. L. Parsons, chief chemist of the Bureau of Mines.

An Army officer to be named by Maj. Gen. Hugh L. Scott, Chief of Staff.

MUST SAVE WHITE BREAD TO AVOID WHEAT SHORTAGE

(Continued from page 1)

of chemists in war was becoming thoroughly recognized in Washington, and that chemists who enter the army will be assigned where they can do the work for which they are best fitted.

C. E. Coates of the Louisiana State University reported that he had de-

vised a treatment for sawdust waste, whereby it could be converted into a charcoal which would enable sugar plants to put on the market a sugar equal in color to the refinery product and at a somewhat lower price.

P. H. Walker of Washington said that he had made tests of American-made laboratory glassware which showed that it was the equal of the standard European-made product.

Prof. Louis A. Olney of the Lowell Textile school told the chemists that the country's textile industry is today in better condition than ever, and that excellent American-made yellow and red dyes are being widely used.

Messrs. Ellidge and McBride of the Mellon Institute of Industrial Research, Pittsburgh, announced that it has been demonstrated that clothes of fabrics washed and finished by ironing or drying at high temperatures are made absolutely sterile. In the case of those so treated the washing with soap produces a bactericidal efficiency comparable to that obtained by pasteurization.

HARVARD UNIT MEN MEET DEATH FROM BOMBING RAID

Four Are Victims When Base Hospital Is Attacked by Germans

Official confirmation of press reports stating that four members of the Harvard base hospital unit No. 5 were killed when the Germans bombed a British hospital base on the French coast, came to the war department today when the following message was received from Maj.-Gen. John J. Pershing:

"Report following deaths Sept. 5, at Base Hospital No. 5, France, from wounds caused by bombs during air raid 11 P. M., Sept. 4:

"First Lieut. William T. Fitzsim-

mons, medical reserve corps, and private first class Leslie G. Woods and Rudolph Rubino, Jr., medical department, and Oscar C. Tugo, medical enlisted reserve corps."

TWO DIE IN AIR COLLISION

SAN DIEGO, Cal., Sept. 12.—Edward M. Walsh, Jr., and Theodore B. Lyman, student aviators at the North Island Military Aviation School, were killed today when their airplanes met about 500 feet above ground. Both were Californians.

According to the official announcement, Walsh and Lyman struck in mid-air while flying at a "blind angle." Because of the positions of their planes, it was said, neither was able to see the other.

Officers believe both were dead before striking the ground.

PROMOTION AWAITED FIRST AMERICAN OFFICER KILLED

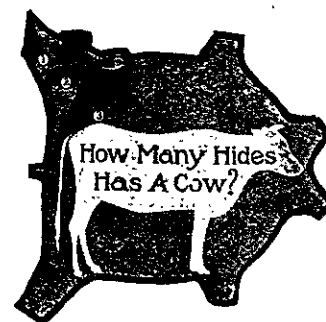
WASHINGTON, D. C., Sept. 10, 1917.—First Lieut. Fitzsimmons of Kansas City, a member of the Harvard unit, who was killed when German airmen bombed an American hospital in France last Thursday, was recommended for promotion to a captaincy on the day he died.

AMERICAN FLYERS HAVE BROUGHT 28 TO EARTH.

PARIS, Sept. 10.—The Lafayette escadrille, composed of American fighting aviators, was formerly cited today for bringing down a total of 28 enemy airplanes.

The record was so unusual as to move French war officials to the highest admiration.

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